IN THE CLAIMS

Claims 1-21 (canceled)

22. (currently amended) A plasma generation apparatus, comprising:

a vacuum vessel having a plasma generation region established in an interior thereof;

a gas inductor that inducts discharge gas into said interior of said vacuum vessel;

an exhaust that exhausts an atmosphere in the interior of said vacuum vessel;

a tube-shaped discharge electrode fashioned so as to enclose said plasma generation region;

a first high-frequency electric power applicator that applies first high-frequency electric power to said discharge electrode;

a first magnetic force line generating portion ~~fashioned so as to enclose said plasma generation region and~~ positioned near one end portion of an outer periphery of said discharge electrode ~~in the direction of a center axis of said discharge electrode~~; and

a second magnetic force line generating portion ~~fashioned so as to enclose said plasma generation region and~~ positioned near the other end portion of an outer periphery of said discharge electrode ~~in the direction of the center axis of said discharge electrode~~,

wherein at least one of said first and second magnetic force line generating portions is overlapped with one end portion of the outer periphery side of the discharge electrode including the one end thereof.

23. (previously amended) A plasma generation apparatus according to claim 42, wherein said first and second magnetic force line generating portion fashioned so as to generate magnetic force lines having portions roughly parallel to the center axis of said discharge electrode, such that the length of said parallel portions becomes longer the closer said magnetic force lines are to said center axis, said magnetic force lines being capable of trapping electrons at least in a center of said plasma generation region and being shaped so that they do not intersect said two walls in the center of said plasma generation region.

24. (currently amended) A plasma generation apparatus according to claim 22, wherein said first magnetic force line generating portion is fashioned so as to output magnetic force lines in said plasma generation region; and

wherein said second magnetic force line generating portion is fashioned so as to ~~be~~ input said magnetic force lines having been output in said plasma generation region by said first magnetic force line generating portion.

25. (currently amended) A plasma generation apparatus according to claim 24, wherein said first magnetic force line generating portion comprises:

a first magnet unit, and is fashioned so that a N pole of said first magnet unit faces said plasma generation region and an extended line of a straight line connecting a N pole and a S pole of said magnet intersects ~~said~~ a center axis of said

discharge electrode substantially perpendicular to a peripheral direction of said discharge electrode, about at a right angle;, and

wherein said second magnetic force line generating portion comprises,

a second magnet unit, and is fashioned so that a S pole of said second magnet unit faces said plasma generation region and an extended line of a straight line connecting a N pole and a S pole of said magnet intersects said center axis of said discharge electrode about at a right angle.

Claims 26-34 (canceled).

35. (previously added) A plasma generation apparatus according to claim 42, further comprising:

a position adjuster that adjusts positions of said two walls in said center axis of said discharge electrode.

36. (currently amended) A plasma generation apparatus according to claim 42, wherein one of said two walls is used as gas diffusion plate for diffusing said discharge gas in said plasma generation region;, and

wherein the other of said two walls, when said plasma is used in subjecting objects to be treated to prescribed treatments, is used as a holder for holding said objects to be treated.

37. (currently amended) A plasma generation apparatus according to claim 22, wherein ~~comprising:~~

~~a vacuum vessel having a plasma generation region established in the interior thereof;~~

~~a gas inductor that inducts discharge gas into said interior of said vacuum vessel;~~

~~an exhaust that exhausts the atmosphere in the interior of said vacuum vessel; a tube-shaped discharge electrode fashioned so as to enclose said plasma generation region;~~

~~a first high-frequency electric power applicator that applies first high-frequency electric power to said discharge electrode; and~~

~~a~~ said first and second magnetic force line generators ~~fashioned so as to enclose said plasma generation region, that generates~~ generate magnetic force lines having portions roughly parallel to a center axis of said discharge electrode, such that the length of said parallel portions becomes longer the closer said magnetic force lines are to said center axis, said magnetic force lines being capable of trapping electrons at least in a center of said plasma generation region.

Claim 38 (canceled).

Claim 39 (canceled).

Claim 40 (canceled).

41. (currently amended) A plasma generation apparatus according to claim ~~43~~42, wherein said two walls are electrode.

42. (previously added) A plasma generation apparatus according to claim 22, further comprising:

two walls positioned so as to sandwich said plasma generation region between them, in the direction of the center axis of said discharge electrode, for defining the scope of said plasma generation region in the direction of the center axis.

Claims 43-45 (canceled).

46. (new) A plasma generating apparatus according to claim 22, wherein at least one of said first and second magnetic force line generating portions is overlapped with one end portion of the outer periphery side of the discharge electrode including the one end thereof.

47. (new): A plasma generating apparatus according to claim 22, wherein a magnetic pole of said first magnetic force line generating portion on the plasma generation region side is opposite to a magnetic pole of said second magnetic force line generating portion on the plasma generation region side.

48. (new): A plasma generating apparatus according to claim 22, wherein a magnetic pole of said first magnetic force line generating portion on the plasma generation region side is opposite to a magnetic pole of said second magnetic force line generating portion on the plasma generation region side.

49. (new): A substrate processing apparatus for subjecting a surface of a substrate of a solid device to a treatment, comprising:

a vacuum vessel having a plasma generation region established in an interior thereof;

a gas inductor that inducts discharge gas into said interior of said vacuum vessel;

an exhaust that exhausts an atmosphere in the interior of said vacuum vessel;

a tube-shaped discharge electrode fashioned so as to enclose said plasma generation region;

a first high-frequency electric power applicator that applies first high-frequency electric power to said discharge electrode;

a first magnetic force line generating portion positioned near one portion of an outer periphery side of said discharge electrode;

a second magnetic force line generating portion positioned near the other end portion of an outer periphery side of said discharge electrode; and

a substrate stage on which the substrate is carried within said plasma generation region,

wherein at least one of said first and second magnetic force line generating portions is overlapped with one end portion of the outer periphery side of the discharge electrode including the one end thereof.

50. (new): A substrate processing apparatus for subjecting a surface of a substrate of a solid device to a treatment, comprising:

a vacuum vessel having a plasma generation region established in an interior thereof;

a substrate stage provided at a lower portion of said plasma generation region and having a substrate stage surface on which the substrate is carried within said plasma generation region, said substrate stage surface extending in a substantially horizontal direction;

a tube-shaped discharge electrode fashioned so as to enclose said plasma generation region and having a tube-shaped wall extending in a substantially vertical direction with respect to said substrate stage surface;

a first high-frequency electric power applicator that applies first high-frequency electric power to said discharge electrode;

a magnetic force line generating portion positioned at an outer periphery side of said discharge electrode;

an upper wall provided at an upper portion of said plasma generation region so as to oppose to said substrate stage;

a gas inductor that inducts discharge gas into said interior of said vacuum vessel; and

an exhaust that exhausts an atmosphere in the interior of said vacuum vessel.

51. (new): A substrate processing apparatus according to claim 50, further comprising:

a second high-frequency electric power applicator that applies second high-frequency electric power to said substrate stage,

wherein said upper wall is directly coupled to a reference voltage.

52. (new): A substrate processing apparatus according to claim 51, wherein said second high-frequency electric power applicator is a resonance circuit that applies high-frequency electric power to said substrate stage.

53. (new): A substrate processing apparatus according to claim 50, wherein said gas inductor inducts discharge gas into said interior of said vacuum vessel through said upper wall, and said exhaust exhausts the atmosphere in the interior of said vacuum vessel from the level side of said substrate stage.

54. (new): A method of fabricating a solid device in a plasma generation apparatus which includes a vacuum vessel having a plasma generation region established in an interior thereof, a tube-shaped discharge electrode fashioned so as to enclose said plasma generation region, and first and second force line generating portions, said method comprising the steps of:

inducting discharge gas into said interior of said vacuum vessel;

applying first high-frequency electric power to said discharge electrode,

wherein said first magnetic force line generating portion is positioned near one end portion of an outer periphery side of said discharge electrode,

wherein said second magnetic force line generation portion is positioned near the other end portion of the outer periphery side of said discharge electrode, and

wherein at least one of said first and second magnetic force line generating portions is overlapped with one end portion of the outer periphery side of the discharge electrode including the one end thereof.

55. (new): A method of fabricating a solid device in a plasma generation apparatus which includes a vacuum vessel having a plasma generation region established in an interior thereof, a substrate stage provided at a lower portion of said plasma generation region and having a substrate stage surface extending in a substantially horizontal direction on which the substrate is carried within said plasma generation region, a tube-shaped discharge electrode fashioned so as to enclose said plasma generation region and having a tube-shaped wall extending in a substantially vertical direction with respect to said substrate stage surface, and first and second force line generating portions, said method comprising the steps of:

inducting discharge gas into said interior of said vacuum vessel;

applying first high-frequency electric power to said discharge electrode,

wherein said first magnetic force line generating portion is positioned near one end portion of an outer periphery side of said discharge electrode,

wherein said second magnetic force line generating portion is positioned near the other end portion of the outer periphery side of said discharge electrode, and

wherein an atmosphere in the interior of said vacuum vessel is exhausted.

56. (new): A method of fabricating a solid device in a plasma generation apparatus which includes a vacuum vessel having a plasma generation region

established in an interior thereof, a tube-shaped discharge electrode fashioned so as to enclose said plasma generation region, and a magnetic force line generating unit, said method comprising the steps of:

inducting discharge gas into said interior of said vacuum vessel;

applying first high-frequency electric power to said discharge electrode,

wherein said magnetic force line generating unit is fashioned so as to enclose said vacuum vessel, and

wherein said magnetic force line generating unit is constituted by first and second magnetic force line generating portions positioned near one end portion and the other end portion of outer periphery of said discharge electrode, respectively; and

exhausting an atmosphere in the interior of said vacuum vessel.

57. (new): A method according to claim 56, wherein said solid device is a semiconductor device.

58. (new): A method according to claim 56, wherein said solid device is a liquid crystal display device.

59. (new): A method according to claim 48, wherein at least one of said first and second magnetic force line generating portions is overlapped with one end portion of the outer periphery side of the discharge electrode including the one end thereof.

60. (new): A method according to claim 48, wherein a magnetic pole of said first magnetic force line generating portion on the plasma generation region side is opposite to a magnetic pole of said second magnetic force line generating portion on the plasma generation region side.